PUBLICATION NUMBER : 2000046127
PUBLICATION DATE : 18-02-00

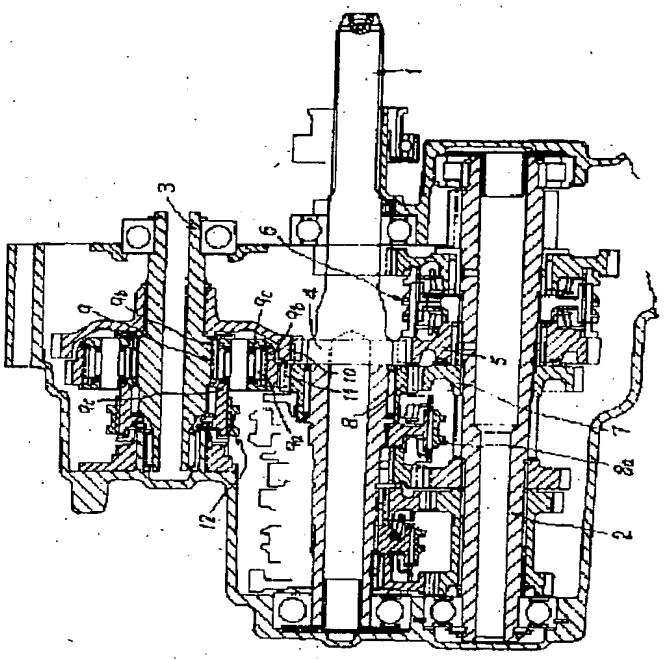
APPLICATION DATE : 24-07-98
APPLICATION NUMBER : 10209448

APPLICANT : NISSAN MOTOR CO LTD;

INVENTOR : YAMAMOTO KIYOSHIGE;

INT.CL. : F16H 3/083 F16H 3/60

TITLE : VEHICULAR TRANSMISSION



ABSTRACT : PROBLEM TO BE SOLVED: To set the transmission ratio and the reverse gear ratio by providing first/fourth gears rotating together with an input shaft and second/third gears rotating together with an output shaft, and providing a planetray gear set, a fifth gear meshing with the first gear and a sixth gear meshing with the fourth gear on a reverse shaft.

SOLUTION: An input shaft I transmits engine motive power, and an output shaft 2 is parallel to the shaft 1 to transmit motive power to a differential gear. A reverse shaft 3 converts motive power from the input shaft 1 into motive power at vehicle retreating time. A first gear 4 is fixed to the shaft 1 to rotate together with the shaft 1, and a second gear 5 meshes with a gear 1 to rotate together with the output shaft 2 by an engaging means 6. A third gear 7 is fixed to the output shaft 2, and a fourth gear 8 meshes with the gear 7 to rotate together with the input shaft I by an engaging means 8a. A planetary gear set 9 is arranged on the reverse shaft 3, and is integrally formed with a pinion 9a to transmit motive power to a sixth gear 11 from a fifth gear 10 through a reverse engaging means 12 at vehicle retreating time.

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 03117750
PUBLICATION DATE : 20-05-91

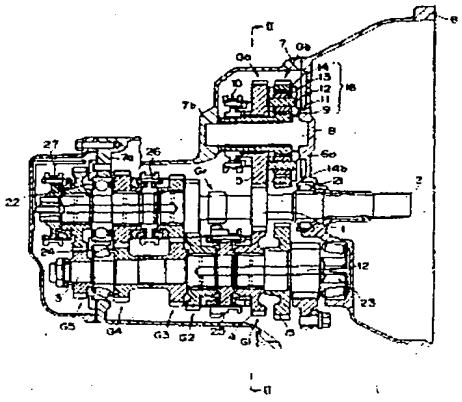
APPLICATION DATE : 29-09-89
APPLICATION NUMBER : 01252028

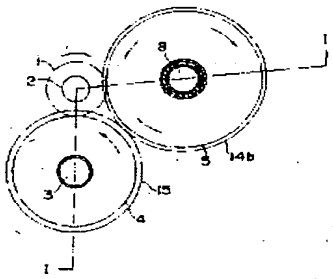
APPLICANT : AISIN SEIKI CO LTD;

INVENTOR : ARAKAWA YOSHIFUMI;

INT.CL. : F16H 3/02 F16H 3/091

TITLE : SPEED CHANGE GEAR





ABSTRACT : PURPOSE: To obtain a large reduction gear ratio, while keeping the dimension of a speed change gear in the radial direction as small as possible, by providing a sub-speed changing mechanism with a countershaft, an epicyclic gear mechanism, which is supported to the countershaft in a rotatable manner, first and second sub-gear trains, both of which are coupled to input and output shafts, respectively, in a rotatable manner, and an engaging/disengaging means.

CONSTITUTION: When an extra low speed stage is selected, namely when a reduction gear 5, which forms a first sub-gear train Ga, is engaged with a sun gear 9 of an epicyclic gear mechanism 16 lying on a counter shaft 8 by a synchro-mesh 10 (engaging/disengaging means) in such a manner that both gears 5 and 9 rotate as an integrated body, the gear 9 rotates in the same direction as that of the gear 5, while three pinion gears 13, which are engaged with the gear 9 along its periphery, rotate in the reverse direction because of a rotation, which is given to the gear 5 by an input shaft 2 via a driving gear 1. Since the center position of a gear 13 is fixed by both a crank case 11 and a pinion shaft 12, a ring gear 14 is driven in the reverse direction to that of the gear 9. An extra slow speed driven gear 15 is driven by the gear 14 via an external both gear 14b, which forms a second sub-gear train Gb, so that a rotation in the same direction as that of a going-forward stage of a main speed change stage is given to an output shaft 3.

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 02225844
PUBLICATION DATE : 07-09-90

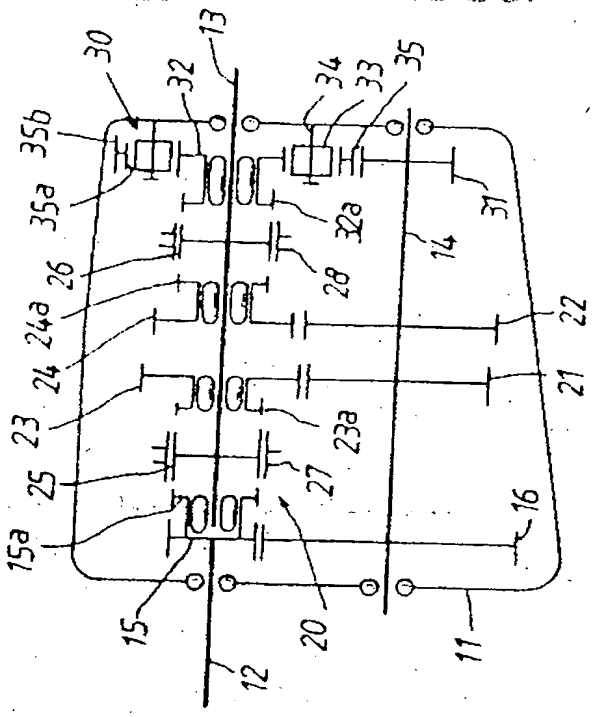
APPLICATION DATE : 23-02-89
APPLICATION NUMBER : 01044951

APPLICANT : TOYOTA MOTOR CORP;

INVENTOR : YOSHINAKA TOSHIO;

INT.CL. : F16H 3/02 F16H 3/091

TITLE : MANUAL TRANSMISSION



ABSTRACT : PURPOSE: To miniaturize and lighten a case, and improve the rigidity to enable the reduction of the noise caused by the resonance of the case by disusing an idler shaft in a backward gear train and a reverse idler gear on that shaft.

CONSTITUTION: In the case that a second sleeve 28 is engaged with a spline piece 32a of a sun gear 32, an input shaft 12 is connected to an output shaft 13 through a first counter gear 16, a counter shaft 14, a fourth counter gear 31, a ring gear 35, a pinion 33 and the sun gear 32 to back a vehicle up. A backward gear train consists of the fourth counter gear 31 on the counter shaft 14 and a planetary gear unit on the output shaft 13, and a third idler shaft except for both shafts 13, 14 and an idler gear to be installed on that shaft are not comprised. Securing the space for locating the idler shaft and the idler gear in a case 11 is thereby eliminated to reduce the section of the case 11.